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EXAMINER

FOGARTY, CAITLIN ANNE

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

06/04/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/553,898 | Applicant(s) TAKAGI ET AL. | |
| | Examiner CAITLIN FOGARTY | Art Unit 1793 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Applicant's submission filed on April 1, 2009 has been entered.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Status of Claims

3. Claims 1 – 8 are pending where claims 1 and 5 have been amended.

Status of Previous Rejections

4. The 35 U.S.C. 103(a) rejection of claims 1 – 8 as being unpatentable over JP 2002-226937 has been maintained.

Claim Objections

5. Claim 5 is objected to because of the following informalities: lines 15-16 of claim 5 recite that the high tensile cold-rolled steel sheet has a microstructure containing 50% or larger area percentage of **martensite**. However, this is a typographical error because p. 6 lines 16-22 of the instant specification (cited as support for the claim 5 amendment in the 4/11/2009 Remarks) recites that the high tensile cold-rolled steel sheet has a microstructure containing 50% or larger

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area percentage of **ferrite**. Therefore, the Examiner will assume that claim 5 is referring to ferrite. Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1 – 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the English machine translation of JP 2002-226937 from the IDS (hereinafter JP '937).

With respect to instant claim 1, the abstract and paragraphs [0009], [0010], [0032], and [0063] of JP '937 disclose a high tensile cold-rolled steel sheet with an overlapping composition as seen in the table below.

| Element | Claims 1 & 5 (mass%) | JP '937 (mass%) | Overlapping Range (mass%) |
|-----------------|-------------------------------------|----------------------------|--|
| C | 0.04 – 0.13 | ≤ 0.15 | 0.04 – 0.13 |
| Si | 0.3 – 1.2 | 0.005 – 1.0 | 0.3 – 1.0 |
| Mn | 1.0 – 3.5 | 0.01 – 3.0 | 1.0 – 3.0 |
| P | ≤ 0.04 | 0.002 – 0.10 | 0.002 – 0.04 |
| S | ≤ 0.01 | ---- | 0 |
| Al | 0.02 – 0.07 | 0.005 – 0.02 | 0.02 |
| Fe + impurities | Balance | Balance | Balance |
| N | ---- | 0.006 – 0.020 | ---- |

Although instant claim 1 recites a cold-rolled steel sheet "consisting essentially of", the presence of nitrogen in the cold-rolled steel sheet of JP '937 is at an impurity level and therefore would not materially effect the basic and novel characteristics of the claimed invention. JP '937 also teaches that the steel sheet has a steel structure essentially consisting of ferrite where the ferrite phase is not less than 60% which is within the instant claimed range of 50% or more ferrite

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(abstract and [0032]). The steel sheet of JP '937 also contains 3 – 40% martensite which overlaps with the instant claimed range of 10% or more martensite ([0010]).

JP '937 differs from claim 1 in that JP '937 does not disclose the ratio of intervals of the martensite in the rolling direction to those in the sheet thickness direction or the nano strength of the martensite. However, since the cold-rolled sheet of JP '937 has an overlapping composition with the composition recited in claim 1 and the steel sheet of JP '937 is made using essentially the same process as the instant invention as discussed below for instant claim 5, it would be expected that the steel sheet of JP '937 would inherently have the recited ratio and nano strength of martensite. See MPEP 2112 IV and V.

In regards to instant claims 2 – 4, paragraphs [0010] – [0012] of JP '937 teach that the cold-rolled steel sheet may also contain one or more of the following in mass percents: Cr and/or Mo: 0.05-2.0, Ni: 0.1-1.5, and Cu: 0.1-1.5. The cold-rolled steel sheet of JP '937 may also contain one or more of Nb, Ti, and V with a total mass percentage of less than 0.3. Finally, the cold-rolled steel sheet of JP '937 may also contain B: 0.0003-0.0015 mass%. These further limitations of the composition of the cold-rolled steel sheet of JP '937 either overlap or are within the compositional range limitations recited in instant claims 2 – 4.

Since the claimed compositional ranges of claims 1 – 4 either overlap or are within the ranges disclosed by JP '937, a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in

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the art at the time the invention was made to select the claimed cold-rolled steel sheet composition from the cold-rolled steel sheet composition disclosed by JP '937 because JP '937 teaches the same utility (i.e. the structural components of an automobile) in the whole disclosed range.

Regarding instant claim 5, paragraphs [0010] – [0012], [0034] – [0042], and [0047] of JP '937 teach a method for manufacturing a high tensile cold-rolled steel sheet. The method includes hot-rolling a steel slab with an overlapping composition with the steel recited in instant claim 5, as discussed above for instant claim 1, into a steel sheet. Then the sheet is coiled at a coiling temperature of 200 - 800°C ([0037]) which encompasses the coiling temperature range of 450 – 650°C recited in instant claim 5. Next, cold-rolling is carried out on the coiled steel sheet at cold-rolling reductions ranging from 60-95% which overlaps with the cold-rolling reduction range of 30-70% recited in instant claim 5. Then the cold-rolled steel sheet is annealed by heating to a temperature range of 650 - 950°C [0041]. Finally, the annealed steel sheet is cooled to a temperature of 300°C or below ([0047]) at an average cooling rate of not less than at least 10°C/s ([0042]). The cooling temperature overlaps with and the cooling rate is the same as those recited in instant claim 5. JP '937 also teaches that the steel sheet has a steel structure essentially consisting of ferrite where the ferrite phase is not less than 60% which is within the instant claimed range of 50% or more ferrite (abstract and [0032]).

JP '937 differs from instant claim 5 in that it does not teach the formula of the annealing temperature range recited in claim 5. However, the annealing

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temperature range of 650-950°C disclosed by JP '937 encompasses the specific examples of annealing temperature ranges recited in Table 2-2 of the instant application and therefore JP '937 teaches annealing temperatures that satisfy the formula recited in claim 5.

JP '937 also differs from instant claim 5 because JP '937 does not disclose the ratio of intervals of the martensite in the rolling direction to those in the sheet thickness direction or the nano strength of the martensite. However, since the cold-rolled sheet of JP '937 has an overlapping composition with the composition recited in claim 5 and the steel sheet of JP '937 is made using essentially the same process as the instant invention, it would be expected that the steel sheet of JP '937 would inherently have the recited ratio and nano strength of martensite. See MPEP 2112 IV and V.

With respect to instant claims 6 – 8, paragraphs [0010] – [0012] of JP '937 teach a cold-rolled steel sheet with an overlapping composition with the steel recited in instant claims 6 – 8, as discussed above for instant claims 2 – 4.

Since the claimed temperature and compositional ranges of claims 5 – 8 either overlap or are within the ranges disclosed by JP '937, a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed temperature ranges and cold-rolled steel sheet composition from the temperature ranges and cold-rolled steel sheet composition disclosed by JP '937 because JP '937 teaches the same utility (i.e. the structural components of an automobile) in the whole disclosed range.

Response to Arguments

8. Applicant's arguments filed March 19, 2009 have been fully considered but they are not persuasive.

Arguments are summarized as follows:

All of the Examples of JP '937 fall outside the scope of the requirements of applicants' claim 5, except the Examples 22, 24, and 25 of JP '937 fall within the annealing temperature requirements of applicants' claim 5. However, Examples 22, 24, and 25 of JP '937 do not have a 10% or larger area percentage of a martensite phase, as called for in applicants' present claims. The area percentages of martensite is a very important constituent feature of the presently claimed invention. To attain a 16000 MPa% or larger strength-elongation balance (TS*EI) and to improve the crashworthiness of an automobile part made from the steel sheet recited in applicants' claims, the area percentage of martensite is required to be 10% or more.

Examiner's responses are as follows:

The scope of JP '937 is not limited to the specific embodiments it teaches (see *In re Fracalossi* 215 USPQ 569 (CCPA 1982)). Therefore, in absence of evidence to the contrary, the Examiner maintains the position that the annealing temperature range of 650-950°C disclosed by JP '937 encompasses the specific examples of annealing temperature ranges recited in Table 2-2 of the instant application and therefore JP '937 teaches annealing temperatures that satisfy the formula recited in claim 5

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since JP '937 also teaches an overlapping coiling temperature and cold-rolling reduction percentage. In addition, JP '937 teaches that the steel sheet of JP '937 also contains 3 – 40% martensite which overlaps with the instant claimed range of 10% or more martensite ([0010]).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAITLIN FOGARTY whose telephone number is (571)270-3589. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Roy King/
Supervisory Patent Examiner, Art
Unit 1793

CF